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Bio-Logic City. Ecological infrastructure and digital

New cities in the Far East

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Contemporary China and the Far East are interested today by intense phenomena of social, urban and territorial transformation and of promotion of several occasions of new cities' construction, mostly cyber or eco, at the same time. Starting from the analysis of a certain number of study cases, this article aims at verifying the existence of common elements among new cyber and eco cities and their reference to achieved urban planning models.

New city represents a special observation's angle in relation to the subject of modern and contemporary city, and more in particular in relation to some recent declensions turning attention towards most advanced technologies, ecological subjects and related to sustainability. New cities are not interesting so much in relation to their particular aspect given to them by being conceived altogether, but more because of the exploration of an urban dimension characterizing a much wider number of projects.

New cities' foundation can be relevant in relation to several number of reasons, starting from the study of the policies of territorial organization advanced by certain States, engaged during the Twentieth century in the control of the consistency, number and life's condition of the population, up to the questioning about the abridged version of the contemporary city.

It can be useful to ask oneself in which conditions the geopolitical and economical will to proceed towards programs of foundation develops. Within the European and Western context of the XX century, up to the Seventies, new cities' construction has been related to several reasons, such as colonization from main European Nations towards Africa, new capital cities built after the creation of new nations or in relation to the necessity of redefining internal political geography, internal colonization within a country, industrial modernization, commerce and communication cities, technological and research centers and metropolitan growth control. During the Eighties and Nineties this last type of tool is adopted within countries of great economical growth, the so called «Asian tigers», particularly South Korea, Malaysia, and China, where the most well known event, called "One city and nine towns", is thought in order to create new poles around Shanghai, each realized following a particular "subject" or "style" inspired from a different western tradition, in order to shape a possible "Italian", "Dutch", "German", "Swedish" city, and so on.

In order to recognize a phenomenal starting point to new cities it is necessary to openly assume the necessary and sufficient criteria aimed at recognizing, even conventionally, which are the foundation's initiatives.

The necessary criteria to the definition of a new city are five, and they have to do with the *existence of an overall project, the geographical and dimensional relations in comparison to existing settlements, the internal articulation of the functional components, a minimal level of settled population and the actual realization (at least partial) of the cities.*

The contemporary presence of the five criteria decreases much the number of settlements which can be considered as new cities. Many of the most well known projects under construction in the Far East cannot be considered as such, because one or more criteria are missing. The majority of the cities under construction around Shanghai can be considered as new cities from all point of view, although some may assume a main industrial character or of centers for scientific and technological research, in which the primary aspect related to a particular way of work appears as evident.

In the Far East new cities' construction within recent decades is mainly related to three types of reasons: contrast of unlimited metropolitan growth, industrial modernization, and constitution of research and high tech poles. In most cases the attempt to face the intense urban and demographical development goes along with the needs of industrial and technological modernization.

Nevertheless many projects under realization cannot be considered new towns with a clear main function; they constitute foundation settlements from all points of view, they present the necessary plurality of functions and send back to recurrent rhetorics of legitimation. Within contemporaneity it is possible to identify two main types of rhetorics: the computer related-high tech one, which is mainly applied in countries which are in the vanguard in relation to technological and computer development, such as South Korea and Malaysia, and the ecological-environmental one, which is mainly used in China.

The difference among the first type of settlements or cyber cities and the smart cities is underlined by Komninos: "Cyber cities perceive spatial intelligence as a problem of telecommunication infrastructure, digital networking, sensors, intelligent agents, online software applications, and automation in the collection and processing of information; as a pure problem of communication technology and artificial intelligence. At the other end of the spectrum, theories about intelligent communities and intellectual capital for communities understand intelligent cities as a combination of human skills, learning institutions and digital technologies; integration of these three ingredients enables city intelligence to emerge, and for new city functions, such as strategic intelligence, technology acquisition, and innovation to materialize." (Nicos Komninos, (2008). *Intelligent Cities and Globalization of Innovation Networks*, New York, Routledge; p. 111)

Systematic events of construction of new computer related-high tech cities were started among last decades by South Korea and Malaysia, while in China eco-cities represent isolated cases mostly. The event started by South Korea within last years is related to five settlements called "U-Cities" (ubiquitous technology); these are Hwaseong-Dongtan U-City, Future-X, Busan city and New Songdo, which is the most significant one. Located at the Incheon's periphery, which is the second metropolitan area of the country, it is meant to become the technological and infrastructural hub of North-East Asia. The idea is that it will become a "total connection" city, able to guarantee to inhabitants a constant digital contact with the surrounding environment through the most advanced technologies. For this reason, New Songdo is classified in 2007 by the Australian newspaper The Age one of the "Top Ten Digital Cities" in the world. The Malaysian event starts at the end of the Eighties with the idea to create a new federal administrative district near to Kuala Lumpur and two new cities complementary among them, Putrajaya, thought as the administrative center of the district and Cyberjaya, assigned to become the technological innovation

center at a national scale. In 1991 the Malaysian Government starts "Vision 2020", a project aimed at defining the main characters of the future economic development based on advanced technologies and sciences, referring to the "Silicon Valley" model.

In China the most part of new towns' recent projects goes back to rhetorics of the ecological-environmental type, where the predisposition of prototypes for new urban environments paying attention to sustainability is given great importance. According to a 2009 report from the World bank, these type of settlements are more than one hundred, located within regions with a higher pollution level. The target is to point out a tendency's inversion in relation to past environmental policies and constitute models for future developments.

Among the most well known projects under construction within the country, it is possible to mention Dongtan eco city (Shanghai), Tangye new town (Licheng district) and Tianjin eco city (Tianjin-Bin Hai).

Dongtan eco-city intends to propose itself as an ecological city for 500.000 inhabitants, at the centre of one of the areas in faster expansion in the world. The declared objective is to become the first sustainable by itself city-territory in the world from an environmental, but also social and economic point of view.

The second eco-city designed by Arup in China, Tangye new town (Licheng district, O. Arup, 200.000 inhabitants), aims at transforming waste into fuel, recover energy from the sun and give back water to the soil through natural drainage and irrigation systems, besides shaping a net of green corridors relating main public buildings among themselves, in order to stimulate bio-diversity and cycle-pedestrian movements.

Similar arguments are advanced by Tianjin eco city (Tianjin-Bin Hai, a strategic cooperation project among China and Singapore, 350.000 inhabitants), which place is on purpose chosen in a well connected location from the transportations' point of view, but characterized by a lack of natural resources and by a fragile ecological system.

The main goal consists on the definition of a model able to give an answer to the problem of urbanization also in situations which are apparently unfavourables.

Both in the eco cities' case, that in the cyber cities' one it is possible to recognize some recurring elements. In the first case the most evident ones appear to be the presence of the natural open space, which is given a public role, ecological systems of waste drainage, sources of renewable energy, low emission transportation systems. Some of the components appearing more frequently within eco cities are zero emission transportation systems, zero energy buildings, urban sustainable drainage systems, use of renewable energy sources and natural ventilation techniques. In the cyber cities' case the common elements are mostly the integration of computer related systems and of innovative technologies to all aspects of daily life. Nevertheless it doesn't seem to exist a commonly shared opinion of the characters defining each of two cities' typologies, as well as often characters appear to be so mixed, that the use of the term bio-logic city, ecological and technological city at the same time, appears to be appropriate. This type of hypothesis is confirmed by the observation of the yearly classification made by the Intelligent Community Forum (ICF), in order to award the most successful settlements and promote the use of broad band infrastructures in the higher number of cities at a world scale. In 2001 New Songdo e Tianjin are classified as "Smart 21 Communities".

As far as the referring to urban models concerns, cyber cities belong to a long term tradition, green cities seem more to represent labs for the definition of models to be applied to future developments. The first ones find direct antecedents in the scientific and technological poles built starting from the Eighties in Japan and China. In the first country the idea, introduced in 1983 by the Industry and International Commerce Ministry as part of a regional strategy aimed at promoting hi-tech industries, includes fifteen new cities altogether, and

ends up in 1998. Within the economic policy introduced by Deng Xiaoping in 1980 with the Special Economic Zones (SEZ) pilot-cities related to experimentation and innovation in different sectors are created in China. Asiatic technological poles from the Eighties belong to the tradition of the so called «techno poles», built in the United States and Europe.

Eco cities, differently, represents a more recent phenomena. First attempts of what we could call eco-urban planning can be located around the middle of the last century. Approximately in the Sixties the first hippie communities in Europe and the United States are started, followed during the following decades by the construction of several villages. Starting from the Nineties many settlements paying attention to sustainability are built in Scandinavia, such as Norra Älvstranden (Göteborg, 1980-2010) and Hammarby Siöstad (Stockholm, 1990-2012).

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